

Amendments to the Claims:

Following is a complete listing of the claims pending in the application, as amended:

1. (Currently amended) A contact assembly for use in an electrochemical deposition system to apply an electrical potential to a microelectronic workpiece, comprising:

a support member having an inner wall defining an opening configured to receive the workpiece and a plurality of posts projecting from the support member;
and

a plurality of contacts ~~including~~ mounted to the posts, wherein individual contacts include a conductor and a cover, the conductor comprising a proximal section projecting inwardly into the opening relative to the support member, a distal section extending from the proximal section, and an inert exterior at least at the distal section, and the cover comprising a dielectric material covering at least the proximal section of the conductor.

2. (Currently amended) The contact assembly of claim 1 wherein:
the support member comprises a conductive ring defining a conductive element, and a dielectric exterior, ~~and a plurality of turrets;~~
the covers of an individual contact ~~the contacts~~ comprises a dielectric sheaths, and wherein the sheaths ~~have~~ has a bore and projects from a post ~~the turrets;~~ and
the conductors of the individual contacts comprises a rods having a first section received in the bore of ~~a cover~~ the sheath and a second section projecting outside of the sheath ~~cover~~.

3. (Currently amended) The contact assembly of claim 1 wherein:
the support member comprises a dielectric ring having a conductive bus, and the posts project from the bus ~~a plurality of turrets;~~

the covers of ~~the~~ a contacts comprises a dielectric sheaths, and wherein the sheaths ~~have~~ has a bore and projects from one of the posts ~~turrets~~; and the conductors of the contacts comprises a rods having a first section received in the bore of a cover and a second section projecting outside of the sheath ~~cover~~, and wherein the rods are electrically coupled to the conductive bus in the ring.

4. (Currently amended) The contact assembly of claim 1 wherein: the support member comprises a ring having a conductive element ~~and a plurality of turrets~~ coupled to the posts; the covers of ~~the~~ a contacts comprises a dielectric sheaths, and wherein the sheaths ~~have~~ has a bore and projects from one of the posts ~~turrets~~ at an angle swept relative to a radius of the ring; and the conductors of the contacts comprises a rods having a first section received in the bore of ~~a cover~~ and a second section projecting outside of the ~~covers~~ sheath.

5. (Currently amended) The contact assembly of claim 1 wherein: the support member comprises a ring having a conductive element ~~and a plurality of turrets~~ coupled to the posts; the covers of ~~the~~ a contacts comprises a dielectric sheaths, and wherein the sheaths ~~have~~ has a bore and projects inwardly and upwardly from one of the posts ~~turrets~~; and the conductors of the contacts comprises a rods having a first section received in the bore of ~~a cover~~ and a second section projecting outside of the ~~covers~~ sheath.

6. (Currently amended) The contact assembly of claim 1 wherein: the covers of ~~the~~ a contacts comprises a dielectric sheaths, and wherein the sheaths ~~have~~ has a bore and projects inwardly into the opening ~~from the support member~~; and

the conductors of the contacts comprises a rods having a first section received in the bore of ~~a cover~~ and a second section projecting ~~inwardly~~ from the ~~cover~~sheath.

7. (Currently amended) The contact assembly of claim 1 wherein ~~the covers of the contacts comprise dielectric sheaths; the conductors comprise rods received in the sheaths; and~~ a plurality of boots cover corresponding posts~~turrets~~.

8. (Currently amended) The contact assembly of claim 1 wherein the conductors ~~each have~~ of an individual contact has an aperture through which a gas can flow.

9. (Currently amended) The contact assembly of claim 1 wherein the contacts are coupled to the support member by ~~a positionable connectors~~ that allows the contacts to swivel with respect to the support member.

10. (Currently amended) The contact assembly of claim 1 wherein the covers ~~of the contacts~~ comprises a dielectric sheaths having a bore.

11. (Currently amended) The contact assembly of claim 1 wherein the conductors comprises a rods composed of platinum or a platinum/iridium alloy.

12. (Currently amended) The contact assembly of claim 1 wherein the conductors comprises a titanium rods having a platinum coating.

13. (Currently amended) The contact assembly of claim 1 wherein the conductors comprises a stainless steel rods.

14. (Currently amended) The contact assembly of claim 1 wherein the conductors comprises a tungsten rods.

15. (Currently amended) The contact assembly of claim 1 wherein the conductors comprises a tungsten rods having a platinum coating.

16-20. (Cancelled)

21. (Currently amended) A ~~The~~ contact assembly of claim 16 wherein for use in an electrochemical deposition system to apply an electrical potential to a microelectronic workpiece, comprising:

a support member having an inner wall defining an opening configured to receive the workpiece, a dielectric exterior, and an electrically conductive element within the dielectric exterior, the support member comprises a ring and a plurality of turrets; and

a contact system having a plurality of contacts projecting inwardly into the opening relative to the support member, the contacts including a conductor having a contact site with an inter surface and a dielectric cover over at least a portion of the conductor, and the conductor being electrically couple to the conductive element of the support member, wherein -

the covers of the contacts comprise dielectric sheaths, and wherein the sheaths have a bore and project from the turrets at an angle swept relative to a radius of the ring; and

the conductors of the contacts comprise rods having a proximal section received in the bore of a cover and a distal end projecting outside of the cover.

22-23. (Cancelled)

24. (Currently amended) A ~~The~~ contact assembly of claim 23 wherein:

the ring has a conductive element, a dielectric exterior, and a plurality of turrets; and

the dielectric elements comprise sheaths that have a bore and project from the turrets; and

the conductors of the contacts comprise rods having a proximal section received in the bore of a cover and a distal end projecting inwardly from the cover.

25. (Currently amended) ~~A~~ ~~The contact assembly of claim 23 wherein:~~
the ring has a dielectric body, a conductive bus carried by the body, and a plurality of turrets;
the dielectric elements comprise sheaths that have a bore and project from the turrets; and
the conductors of the contacts comprise rods having a proximal section received in the bore of a sheath and a distal end projecting inwardly from the sheath, and wherein the rods are electrically coupled to the conductive bus in the ring.

26. (Currently amended) The contact assembly of claim ~~23~~ 24 wherein:
~~the ring has a conductive element and a plurality of turrets;~~
~~the dielectric elements comprise sheaths that have a bore and project from the~~
turrets at an angle swept relative to a radius of the ring; and
~~the conductors of the contacts comprise rods~~ are partially received in the sheaths.

27. (Currently amended) The contact assembly of claim ~~23~~ 24 wherein:
~~the ring has a conductive element and a plurality of turrets;~~
~~the dielectric elements comprise sheaths that have a bore and project inwardly~~
and upwardly from the turrets; and
~~the conductors of the contacts comprise rods~~ are partially received in the sheaths.

28-33. (Cancelled)

34. (Original) A contact assembly for use in an electrochemical deposition system to apply an electrical potential to a microelectronic workpiece, comprising:

- a support member having a ring including an inner wall defining an opening configured to receive the workpiece and a plurality of turrets depending downwardly;
- a plurality of dielectric sheaths coupled to the support member, wherein each sheath has a bore and projects from a corresponding turret inwardly into the opening; and
- a plurality of conductors having a first section, a second section, and an inert exterior on at least the second section, wherein at least the first section of each conductor is received in the bore of a sheath.

35. (Original) The contact assembly of claim 34 wherein the conductors comprise platinum rods.

36. (Original) The contact assembly of claim 34 wherein the conductors comprise titanium rods having a platinum coating.

37. (Original) The contact assembly of claim 34 wherein the conductors comprise stainless steel rods.

38. (Original) The contact assembly of claim 34 wherein the conductors comprise tungsten rods.

39. (Currently amended) A reactor for electrochemical deposition processing of a microelectronic workpiece, comprising:

- a vessel configured to hold a processing solution;
- an electrode disposed relative to the vessel to provide an electrical potential in the vessel;
- a head assembly moveable relative to the vessel between a load/unload position and a processing position; and

a contact assembly carried by the head assembly, wherein the contact assembly comprises -

a support member having an inner wall defining an opening configured to receive the workpiece and a plurality of posts projecting from the support member; and

a plurality of contacts ~~including~~ mounted to the posts, wherein individual contacts include a conductor and a cover, the conductor comprising a proximal section projecting inwardly into the opening relative to the support member, a distal section extending from the proximal section, and an inert exterior at least at the distal section, and the cover comprising a dielectric element covering at least the proximal section of the conductor.

40. (Currently amended) The reactor of claim 39 wherein:

the support member comprises a ring having a conductive element and a ~~plurality of the posts comprise~~ turrets; and

~~the covers of the contacts further comprise rods and dielectric sheaths along a proximal portion of the rods, and wherein the sheaths have a bore and project from the turrets; and~~

~~the conductors of the contacts comprise rods having a first section received in the bore of a cover and a second section projecting inwardly from the cover.~~

41-52. (Cancelled)

53. (Original) A reactor for electrochemical deposition processing of a microelectronic workpiece, comprising:

a vessel configured to hold a processing solution;

an electrode disposed relative to the vessel to provide an electrical potential in the vessel;

a head assembly moveable relative to the vessel between a load/unload position and a processing position; and

a contact assembly carried by the head assembly, wherein the contact assembly comprises -

- a support member having a ring including an inner wall defining an opening configured to receive the workpiece and a plurality of turrets depending downwardly;
- a plurality of dielectric sheaths coupled to the support member, wherein each sheath has a bore and projects from a corresponding turret inwardly into the opening; and
- a plurality of conductors having a first section, a second section, and an inert exterior on at least the second section, wherein at least the first section of each conductor is received in the bore of a sheath.

54. (Original) The reactor of claim 53 wherein the conductors comprise platinum rods.

55. (Original) The reactor of claim 53 wherein the conductors comprise titanium rods having a platinum coating.

56. (Original) The reactor of claim 53 wherein the conductors comprise stainless steel rods.

57. (Original) The reactor of claim 53 wherein the conductors comprise tungsten rods.

58. (Currently amended) A tool for electrochemical processing of a microelectronic workpiece, comprising:

- a cabinet;
- a transfer mechanism; and
- an electroplating reactor in the cabinet comprising a vessel configured to hold a processing solution, an electrode disposed relative to the vessel to provide an electrical potential in the vessel, a head assembly moveable relative to the vessel between a load/unload position and a processing position, and

a contact assembly carried by the head assembly, wherein the contact assembly comprises -

a support member having an inner wall defining an opening configured to receive the workpiece and a plurality of posts projecting from the support member; and

a plurality of contacts ~~including a~~ mounted to the posts, wherein individual contacts have a conductor and a cover, the individual conductors comprising a proximal section projecting inwardly into the opening relative to the support member, a distal section extending from the proximal section, and an inert exterior at least at the distal section, and the individual covers comprising a dielectric material covering at least the proximal section of ~~the a~~ corresponding individual one of the conductors.

59. (Currently amended) The tool of claim 58 wherein:

the support member comprises a ring having a conductive element, a dielectric exterior, and ~~a plurality of the posts comprise~~ turrets; and
~~the covers of the contacts conductors further comprise rods dielectric sheaths,~~
~~and wherein the sheaths have a bore and project from the turrets; and~~
~~the conductors of the contacts comprise rods having a first section received in the bore of a cover and a second section projecting away from the cover.~~

60. (Currently amended) The tool of claim ~~59~~ 58 wherein: further comprising dielectric sheaths covering proximal sections of the rods.

~~the support member comprises a dielectric ring having a conductive bus and a plurality of turrets;~~
~~the covers of the contacts comprise dielectric sheaths, and wherein the sheaths have a bore and project from the turrets; and~~
~~the conductors of the contacts comprise rods having a first section received in the bore of a cover and a second section projecting inwardly from the cover, and wherein the rods are electrically coupled to the conductive bus in the ring.~~

61-64. (Cancelled)

65. (Original) The tool of claim 58 wherein the conductors comprise platinum rods.

66. (Original) The tool of claim 58 wherein the conductors comprise titanium rods having a platinum coating.

67. (Original) The tool of claim 58 wherein the conductors comprise stainless steel rods.

68. (Original) The tool of claim 58 wherein the conductors comprise tungsten rods.

69. (Original) A tool for electrochemical processing of a microelectronic workpiece, comprising:

- a cabinet;

- a transfer mechanism; and

- an electroplating reactor in the cabinet comprising a vessel configured to hold a processing solution, an electrode disposed relative to the vessel to provide an electrical potential in the vessel, a head assembly moveable relative to the vessel between a load/unload position and a processing position, and a contact assembly carried by the head assembly, wherein the contact assembly comprises -

- a support member having a ring including an inner wall defining an opening configured to receive the workpiece and a plurality of turrets depending downwardly;

- a plurality of dielectric sheaths coupled to the support member, wherein each sheath has a bore and projects from a corresponding turret inwardly into the opening; and

a plurality of conductors having a first section, a second section, and an inert exterior on at least the second section, wherein at least the first section of each conductor is received in the bore of a sheath.

70. (Original) The tool of claim 69 wherein the conductors comprise platinum rods.

71. (Original) The tool of claim 69 wherein the conductors comprise titanium rods having a platinum coating.

72. (Original) The tool of claim 69 herein the conductors comprise stainless steel rods.

73. (Original) The tool of claim 69 herein the conductors comprise tungsten rods.

74. (Cancelled)